# A Theory Exploring how Expert Leaders Influence Performance in Knowledge-Intensive Organizations

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**Abstract** Leadership has been deemed, by some earlier scholars, to be less necessary in organizations that are knowledge-intensive. It has been assumed that because experts and professionals are driven largely by intrinsic motivation, extrinsic management and leadership factors are less important. We believe this assumption is wrong. Leaders have been shown in recent studies to have a considerable influence on organizational performance in universities, research institutes, hospitals and in high-skill sports settings. What matters, we argue, is the kind of leader. Experts and professionals need to be led by other experts and professionals, those who have a deep understanding of and high ability in the core-business of their organization. Our contribution will summarize the literature on the relationship between expert leaders and organizational performance, and then we will present a theory of expert leadership in a new model that outlines the possible transfer processes through which expert leaders generate better organizational performance.

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# 1 Introduction[1]

In 1996 Google was created by two Stanford University PhD students, Larry Page and Sergey Brin, as part of their research. Although it has become a billion dollar empire, Google continues to promote its scientific credibility. Almost all members of the Google board hold at least one computer science or engineering undergraduate degree, Master's degree or PhD. There are two university presidents on the board – Stanford's John Hennessy and the former Princeton President Shirley Tilghman, both of whom are eminent scholars; and proud mention is made by the founders of their links with the National Academy of Engineering and other scientific bodies.

Putting scientists on corporate boards may seem counterintuitive to some; similarly, the idea of leadership may appear anomalous to knowledge-workers (Jung, 2001). This is partially because of the assumption that knowledge workers are somehow feline (e.g. Davies and Garrett 2010), and as cats cannot apparently be herded, leadership of knowledge workers is, therefore, not possible[2]. Because experts and professionals are more likely to be driven by intrinsic motivation (Amabile, 1993), it has sometimes been assumed that management and leadership practices are less important. This is not correct. Organizations of very different kinds perform better when good management practices are in place (Bloom & Van Reenen, 2007; Bloom, Genakos, Martin & Sadun 2010; McCormack, Propper & Smith, 2013). Similarly, there is evidence that knowledge-intensive organizations (hereafter KIOs) perform more effectively under the right kind of leadership (e.g. Goodall, 2009a,b). Although management practices are important to performance outcomes, the evidence suggests that organizational leaders should be more than managers; they should be individuals who have a deep knowledge of the core-business[3] activity of their organizations, what we term 'expert leaders'. For example, the core-business of a research university is scholarship. Universities were found to have improved in their performance if they were led, a number of years earlier, by presidents (vice chancellors, rectors) with strong research records (Goodall, 2006, 2009a,b). The same finding exists at the academic department level. In a recent study assessing the success of US economics departments over time, we found that departments improved the most over a fifteen year period if they were led by Chairs whose own research was highly cited (Goodall, McDowell & Singell, 2014). A relationship between the core-business knowledge held by a leader and organizational success has been found in a number of settings: basketball (Goodall, Kahn & Oswald, 2011), hospitals (Goodall, 2011), and Formula 1 Championships (Goodall & Pogrebna, 2013). The suggestion from these studies is that leader characteristics should align with the organizations core-business activity.

The issue of expert leaders vs. leaders with a predominantly managerial background is germane because over the last few decades', major firms have moved away from hiring CEOs with technical expertise, towards selecting leaders who are generalists (Frydman, 2007; Bertrand, 2009). An extreme example of a sector that has gone over to manager-CEOs and away from technical experts is that of healthcare. In the past, qualified doctors ran hospitals. In the United States (US) today only 4% of hospitals are led by medically trained doctors (Gunderman & Kanter, 2009). Similarly, in the United Kingdom (UK), most CEOs are now professional managers (Goodall, 2011). The evidence and supporting arguments presented here suggest that the pendulum may have swung too far away from core-business functions towards management functions in the selection of leaders in many sectors.

[1] The work presented in this chapter draws on earlier work by Goodall (2012) and Goodall (2014), among other non-technical articles.

[2] It is notable that despite popular belief cats are a social species and they adhere to hierarchies.

[3] The core business is defined here as the primary or underlying activity; it is that which is considered to be the most important or central endeavor in an organization, and it generates the most attention and income.

In this chapter we will focus on leadership in KIOs. In section 2 we summarize the evidence in support of expert leaders and draw from research in other fields. Section 3 elaborates on the concept of expert knowledge. In section 4 we explore why organizations headed by experts appear to perform better. That is, what are the transmission channels through which expert leaders may generate better performance? We try to explain these processes through a theory of expert leadership (Goodall, 2012; Goodall and Pogrebna, 2013) presented here in a new conceptual framework. Finally, in section 5 we discuss the potential weaknesses associated with expert leaders and section 6 concludes.

## 2 Expert Leaders and Organizational Performance

To estimate leaders' effects on organizational performance in an exact way within real-world settings is known to be problematic (Antonakis, Bendahan, Jacquart, & Lalive, 2010, Blettner, Chaddad & Bettis, 2012). Nevertheless, there is a growing research literature that claims to have captured leaders' influence on performance. Much of the work attempts to separate CEO effects from industry or firm effects to calculate the explanatory power of leaders and their characteristics (e.g. Waldman & Yammarino, 1999; Mumford, Scott, Gaddis, & Strange, 2002; Bertrand & Schoar, 2003; Jones & Olken, 2005; Bennedsen, Perez-Gonzalez, & Wolfenzon, 2007; Mackey, 2008).

In the context of KIOs, recent studies have shown that leaders can have a positive effect on organizational performance (e.g. Goodall, 2009a,b, 2014). In these studies the key leader characteristic that is observed, and is associated with a change in performance, is described as 'expert knowledge'. Expert knowledge has two components: industry experience and expert ability in the core business activity. Expert knowledge is not viewed as a proxy for management ability or leadership experience, both of which are always necessary as suggested above. However, the earlier studies outlined above do not measure these factors. A key suggestion is that expert knowledge about the core business should be viewed as a first-order requirement when hiring panels appoint organizational leaders (Goodall and Pogrebna, 2013). Once this is established, other important factors can be scrutinized as a secondary process; for example, the more subjective attributes like style of leadership (transactional/transformational), personality (charisma/traits), or the nature of their relationships (leader–member exchange). These secondary factors are likely to be disparate. This expert leader proposition may be especially important in KIOs, where work tasks are less structured and workers often need greater autonomy to be creative (Amabile & Gryskiewicz, 1989).

Employee creativity is known to be enhanced when supervisors themselves have creative expertise. Mumford et al. (2002) summarize this research, drawn predominantly from the psychology literature. They report that to lead creative individuals requires both "technical and creative problem-solving skills" since, as the authors suggest, "they provide a basis for structuring an inherently ill-defined task and because they provide the credibility needed to exercise influence" (2002, p. 712). The earliest of these studies, Andrews and Farris (1967), examined scientists' productivity. The ability of the supervisor as a scientist was the best predictor of a researcher's creative performance, when compared with other factors such motivation, maintaining group relationships, and the amount of autonomy granted to staff. These results were replicated in a similar study by Barnowe (1975).

A positive association between leaders' expert knowledge and firm performance has also been found in other KIOs. For example, in a study of US hospital CEOs, Goodall (2011) found that hospitals led by medically trained doctors, as opposed to professional managers, were more likely to be ranked higher in performance. In the sports setting of US basketball, coaches who were former All-Stars players with long playing careers were associated with

the greatest winning success (Goodall, Kahn & Oswald 2011). In the competitive industry of Formula 1 Championships, the performance of constructor teams (e.g. Ferrari, Mercedes, McLaren) were examined across the whole history of the industry. Team principals who were former racing drivers made the best leaders (Goodall & Pogrebna, 2012). In these studies between 8% and 15% of organizational performance is explained by the expert knowledge effect.

The research on expert leaders links to the literature on CEO origin, that attempts to identify a link between firm performance, among other outcomes, and whether a CEO has been hired from outside a firm or sector, or promoted from within (see Kesner & Dalton, 1994; Shen & Cannella, 2002; Wiersema, 1995; Zajac, 1990; Karaevli, 2007; Zhang & Rajagopalan, 2004; Zhang & Rajagopalan, 2010) and therefore possesses expert knowledge. The evidence, that is ambiguous, in general reveals that insider and outsider CEOs bring different perspectives that may prove beneficial under different conditions; these are dependent upon, for example, pre or post-succession, firm performance during periods of environmental munificence or turbulence, the level of strategic change that is introduced, and so on (Harris & Helfat, 1997; Karaevli, 2007; Zhang & Rajagopalan, 2010).

What can be observed is that outsider CEO hires have risen since the early 1990s (Lucier, Schuyt & Handa, 2003). A study on CEO succession in the world's largest 2,500 public companies revealed that in 2011 twenty-two percent of new CEOs came from outside their organization, compared to fourteen percent in 2007 (Booz & Co, 2011). This study also showed that insider CEOs tend to stay for longer and leave their companies with higher shareholder returns, supporting our proposition that expert knowledge contributes positively to leadership performance.

## 3 Expert Knowledge in the Core-Business

What is meant by expert knowledge? There are over 4,000 academic articles that mention the term 'expert knowledge' in the disciplines of computer science, ecology and environmental science, engineering, medicine, psychology and sociology. In the social sciences the term tends to be linked to experts; those who have acquired a focused knowledge and expertise such that it affects how they perceive the world (see Ericsson, Charness, Hoffman, & Feltovich, 2006). Experts differ from non-experts in a number of ways: knowledge is represented and bundled differently, they tend to think more holistically about problems (Bradley, Paul, & Seeman, 2006), and experts are more likely than novices to use abstract concepts to solve problems (Sembugamoorthy & Chandresekaren, 1986).

Expert knowledge is acquired through a combination of technical education, domain-specific knowledge, practice and experience (Chase & Simon, 1973; de Groot, 1978); it combines explicit and tacit knowledge (Nonaka, & Takeuchi, 1995) and it might also be thought of as a deep understanding that aids intuitive decision-making, akin to wisdom (Tichy & Bennis, 2007). We suggest that when a leader has expert knowledge in the core-business it influences decision-making through a process of 'expertise-based intuition' (Salas, Rosen, & DiazGranados, 2010), an idea that combines the work on intuition and decision-making (e.g. Tversky & Kahneman, 1981; Burke & Miller, 1999; Lowenstein, 2000; Gigerenzer, 2007) with the literature on expertise (Ericsson et al., 2006). Salas, Rosen, & DiazGranados (2010) argue that it is intuition informed by expertise that leads to effective intuitive decision making. Performance is attained through mechanisms of expert decision-making derived from domain-knowledge, experience and practice (Ericsson, Krampe, & Tesch-Romer, 1993; Salas et al., 2010).

As suggested above, our interpretation of expert knowledge is that it is tied to the core business of the organization through two mechanisms: the first is expert ability in the core

business activity. This can be explained by an example from earlier studies of university leadership and organizational performance (Goodall, 2006; 2009a,b). In some UK universities it has been possible for non-research focused academics to go into senior leadership positions (e.g. vice chancellors); these heads may include academics who dropped out of research completely at an early stage in their career, or those who maintain minimal research output. The evidence shows that university presidents who follow this kind of career trajectory are associated with reduced organizational performance, compared with presidents who were instead among the best researchers (Goodall, 2006; 2009a,b). Thus, better researchers go on to make better university presidents.

The second factor we suggest that contributes to expert knowledge is industry experience, which accounts for the amount of time a head or supervisor has worked in an industry. This idea links directly with the research on CEO origin, outlined above, and to a new study showing that supervisor's competence is the single strongest predictor of workers' well-being (Artz, Goodall & Oswald, 2014). The authors examine data from three different sources. In a cross-section of 1600 British workers, satisfaction levels are shown to be higher among individuals whose supervisor could if necessary step in competently to do their job; and in pooled cross-sections totaling 27,000 individuals, workers' job satisfaction is found to be highly correlated with the perceived competence of supervisors. Finally, in a cross-section of 6000 young U.S. workers, the job satisfaction of employees is found to be positively associated with whether the supervisor worked his or her way up within the company, or started the company (Artz, et al., 2014). Supervisor competence and industry experience are shown to be associated with workers' job satisfaction; this is important because happier workers also make more productive workers (Edmans, 2012; Oswald, Proto and Sgroy, 2014).

Arguably, industry experience is valuable, but not in isolation. For example, it might be claimed that managers in hospitals have a great deal of knowledge about healthcare administration, finance and health policy because they have worked in the sector for many years. However, professional managers do not have expert knowledge in the core-business of hospitals which is the practice of medicine; only clinically-trained medics have this.

## 4 How do Expert Leaders Positively Influence Organizations?

Mumford et al (2002) review the psychology literature to partially answer the question: why does a leader's technical expertise matter to the performance of their creative subordinates? They report, first, that the evaluation of creative people and their ideas can only be done by individuals who share their competencies; in short, it takes one to know one (or competently assess one). Second, leaders who share the same creative and technical perspective and motivation as their followers can communicate more clearly; finally, in relation to performance, they can better articulate the needs and goals of the organization. We build on these ideas to try and address the question: how do expert leaders influence organizational performance? In our conceptual framework in Figure 1, we suggest there are two main channels through which expert leaders, in contrast to manager leaders, have a positive impact on performance. First, experts diverge in their *decisions and actions* from professional managers; and second, their expertise serves as a *signal* to insiders and outsiders – always holding constant management and leadership experience.

Next we summarize our model of expert leadership.

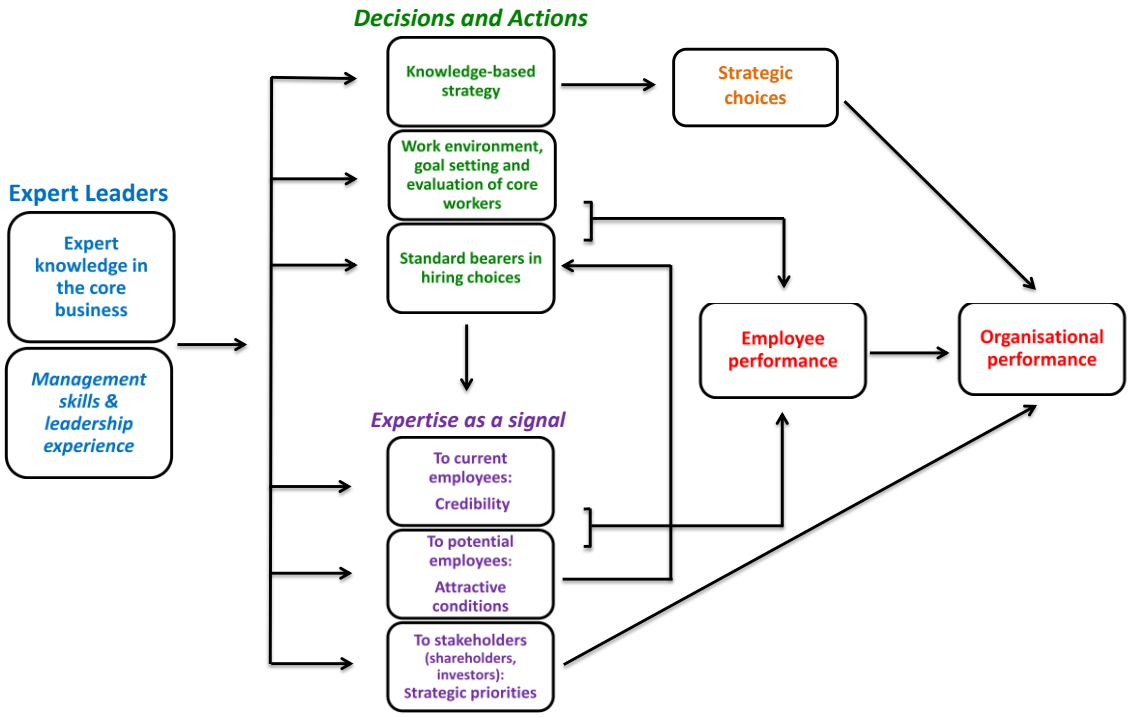
### *4.1. Expert Leaders*

Expert knowledge, we argue, should be viewed as a first-order requirement, after controlling for management skills and leadership experience which are factors required by all senior

executives. Expert knowledge of the core-business is not a substitute for management skills and leadership experience. All leaders must be competent in these areas. Consequently, not all experts will make good managers and leaders.

*Proposition 1: Expert knowledge is not a proxy for management skills and leadership experience, both are necessary prerequisites.*

**Fig. 1** Model of Expert Leadership: Conceptual Framework




### *4.2. Decisions and Actions*

Leaders are involved in multiple decisions and actions. To explain performance differences between expert leaders and manager leaders, we focus on those decisions and actions where the two types of leaders might reasonably differ. These are: (1) making knowledge-based strategic decisions, (2) creating a suitable work environment and providing adequate goals, and informed evaluation to core workers, and (3) hiring behavior.

**1. Knowledge-based strategy**

A knowledge-based strategy is that which combines a leader's expert knowledge of the core business with the strategic direction of their organization. We propose this happens in two ways: first, experts make better strategic choices compared with manager leaders because their preferences align with what is best for the organization; second, expert leaders are intrinsically motivated by the core-business activity, which we believe makes it more likely that experts will adopt the long view.

To become a successful expert, whether in architecture or engineering, an individual will normally focus intensely on their subject and sector for a number of years, thereby amassing a deep knowledge base. This is often referred to in the literature as domain knowledge; that which has been acquired through education, training, and experience within

a particular context. Aligning a leader's own career preferences and priorities with the requirements of the core business will, we argue, shape decision-making and organizational strategy. An example can be found in Barker & Mueller (2002), who show that research and development (R&D) spending is significantly increased in firms where CEOs have advanced science-related degrees (Barker & Mueller, 2002; see also Narayanan, 2001).

This proposition connects with Hambrick & Mason's (1984) Upper Echelons (UE) theory (see Carpenter, Geletkanycz, & Sanders, 2004 for a review). UE theory argues that top managers make strategic choices that are reflections of their own values and cognitions. Members of the top management team will be influenced in their decision-making by individual and group demographic factors (such as age, education, functional track, top management team heterogeneity). UE theory focuses on the top management team (TMT) demographics, whereas we concentrate on CEO characteristics or generally any leaders characteristics.

Because of the extensive time and effort necessary to develop expertise to a high level, experts are more often self-motivated − driven by intrinsically motivated curiosity − rather than by purely extrinsic factors, such as money (Amabile, 1993, 1996). Intrinsic motivation is defined as 'the drive to do something for the sheer enjoyment, interest, and personal challenge of the task itself (rather than solely for some external goal)' (Hennessey & Amabile, 2010, p. 581). We suggest that leaders who are intrinsically motivated by the core-business may be more likely to adopt strategic choices that follow a long view with regards income and profit generation. In contrast, it is the adoption of a short view − or short-termism (Laverty, 1996; Palley, 1997; Marginson & McAulay, 2008) − that is often linked by scholars (Nesbitt, 2009; Dallas, 2011) and commentators (e.g. Matthew Bishop in The Economist, Nov 13, 2009) to the financial crisis of 2008. CEO short-termism, demonstrated for example in the length of CEO decision horizon, is linked to a preference for investments with faster paybacks, which may be to the detriment of long-term value creation (Antia, Pantzalis, & Park, 2010). Instead, we suggest that a long term strategy as adopted by expert leaders may increase organizational performance.

*Proposition 2*: *Expert leaders implement more profitable organizational strategies than manager leaders.*

**2. Work environment, goal setting and evaluation of core workers**

Expert leaders might be described as being the first among equals because they originated from the core workers. Having been 'one of them', expert leaders understand the culture and value system of core workers, and also their incentives and motivations. We argue that expert leaders are, therefore, more likely to create the right conditions for core workers, compared with leaders who are non-experts (e.g. those who ceased working in the core-business activity early in their careers, or are professional managers). As work environments are known to be important to employees' creativity and to their creative performance (Shalley, 1991, 1995; Oldham & Cummings, 1996), we argue that expert leaders will increase the performance of KIOs by creating the right work environment for the core workers. When the work environment complements the creative requirements of the job, individuals report higher job satisfaction and lower intentions to quit (Shalley, Gilson, & Blum, 2000), increasing organizational performance. The best core workers are expensive because they are in demand. Thus, if key employees are to be held onto, KIOs must offer competitive incentives and a fertile work environment.

How can leaders create the right work environment for knowledge workers? Suggestions from the literature on the role of supervisors in promoting creativity include: support and encouragement, effective communication, appraisal, and mentoring, and ensuring

that appropriate human resource practices are in place (Drazin, Glynn, & Kazanjian, 1999; Mumford, 2000; Mumford et al., 2002; Oldham & Cummings, 1996; Shalley, Gilson & Blum, 2000; Tierney, Farmer & Graen, 1999; Tierney, 2008). Following Mumford et al. (2002) but applying their reasoning not only to creative industries, we argue that expert leaders are better placed to evaluate the ideas of their core workers and offer constructive feedback, because they have the same technical expertise as those being appraised (Mumford, Marks, Connelly, Zaccaro & Reiter-Palmon, 2000; Basadur, Runco, & Vega, 2000). An important aspect with respect to the specific context of KIOs, is that these kinds of organizations require risk-taking insofar as new ideas often stem from unknown phenomena. Failure must therefore be tolerated (Watkins & Marsick, 1993); expert leaders who originated from the core workers may be more likely to accept and tolerate failure and to live with the ambiguity of the context (Alvesson, 1993). A key reason why managerial processes have been so widely introduced in various settings may be because managers do not understand how to assess, monitor or feedback to knowledge workers. If managers do not share expert knowledge with core workers then arguably trust will also be absent. A lack of trust may lead to the introduction of overly cumbersome management systems, and inappropriate assessment may create a counterproductive climate, leaving employees feeling unfairly treated and demotivated.

Tying in with evaluation and feedback is the setting of goals, as a prerequisite for appraising performance. To increase motivation, goals should be set in such a way that they are neither too low, nor too high (Locke, Shaw, Saari, & Latham 1981). However, it may be hard for non-experts to establish the right balance, because they do not understand the complexity of key tasks and projects. Whereas experts, who understand the competencies and abilities of their employees, are more likely to set goals that are both attainable and challenging (Mumford et al. 2002). Indeed, if a firm wants to be among the best in its field, then, we argue, the board should hire a leader who is already one of the best in that same field. As it is the leader's responsibility to establish the quality threshold in an organization, if an outstanding expert is hired as leader, the bar is automatically raised. Also, importantly, it may be easier for a leader to be an effective quality enforcer if she or he has first met the standard that is to be imposed (i.e. the standard bearer should first bear the standard).

Evaluating the performance of core worker, setting appropriate goals and giving constructive feedback are important factors for a productive work environment. Autonomy is also important for knowledge workers (Bucher & Stelling, 1969, Robertson, & Hammersley 2000, Robertson & Swan, 2003). Work environments that are found to be managed by supervisors who are supportive and not overly controlling foster creativity (Oldham & Cummings, 1996). Expert leaders understand the conditions that are required because, as suggested above, they have direct knowledge of the field and understand the culture and value system of core workers, their incentives and motivations. Thus, they will likely trust their employees with greater autonomy. In contrast, to compensate for their lack of core-business knowledge, a non-expert or a professional manager may be more likely to use managerial processes that they (as managers) have learned through training, and also from their own experience of being supervised by other managers.

*Proposition 3*: *Expert leaders create a more appropriate work environment for core workers than manager leaders.*

**3. Standard bearers in hiring choices**

Most CEOs and HR directors would likely agree that hiring the best people is central to the success of any organization. Individuals who have excelled in their field of expertise (top scientists, surgeons, etc.) might be expected to hire others who are also outstanding in their

field. If higher quality core workers are employed, this is likely to lead to improved organizational performance. Homophily in hiring and promotion happens when recruiters seek to 'reproduce themselves in their own image' (Kanter, 1977). That people select others who are like themselves is a form of assortative matching (Becker, 1973). We suggest that an outstanding expert may be more likely to recognize other similar talent, and be willing to hire someone who is more able than they are. For example, in a school setting, the undergraduate backgrounds of principals' (school heads) are found to correlate with the academic undergraduate backgrounds of the teachers a head hires. Principals who attended more selective universities are more likely to hire teachers who have stronger academic backgrounds, which is shown to produce better student outcomes (Baker & Cooper, 2005).

It has been suggested that people find it hard to hire others who are better than themselves[4]. Sometimes, negative self-feelings can be traced directly to, and are antecedents of, processes of social comparison (Festinger, 1954). Job satisfaction and happiness have been shown to be related to how the self compares with similar others (Stiles & Kaplan, 2004; Clark & Oswald, 1996; Luttmer, 2005).

*Proposition 4*: *Expert leaders hire better employees than manager leaders.*

### *4.3. Expertise as a Signal*

We have argued that expert leaders make different decisions and take different actions compared with manager leaders. But they may also signal different messages about themselves and their organizations to their own workers and to outsiders.

**1. Signals credibility**

Expert leaders may appear credible and command more respect because of their proven track record in the core-business activity. The idea that credibility legitimizes leaders' authority is well documented in the literature (e.g. Bass, 1985; Bennis & Nanus, 1985; Kouzes & Posner, 2003). This approach focuses on the social interactions between leaders and their followers. We suggest that expert leaders are viewed as credible because they have 'walked-the-walk' to a high standard. It also signals that a head understands the culture and value system, incentives and priorities of those being led. A manager leader might have equal levels of executive power, but expert leaders are likely to have both power and influence particularly among the core workers. Although credibility can be acquired because of expert knowledge, arguably, in the long run, it must be maintained through good performance. This is why in the conceptual framework in Figure 1 we show that the decisions and actions of a leader flow towards credibility. As workers are able to observe the decisions and actions of their leader as well as the consequences of those decisions and actions, the importance of expertise for creating credibility may be reduced over time.

*Proposition 5*: *Because expert leaders are more credible than manager leaders, they are more willingly followed by core workers.*

**2. Signals work conditions**

[4] This is captured in a statement attributed to André Weil, a French mathematician from the mid-20th Century, in his 'Weil's Law of university hiring': 'First rate people hire other first rate people. Second rate people hire third rate people. Third rate people hire fifth rate people.' Likewise, the American writer Leo Rosten is cited as having said, 'First-rate people hire first-rate people; second-rate people hire third-rate people.' In interviews with university presidents (Goodall 2009a), a number of heads commented on the need to put the most outstanding scholars on hiring panels to ensure that the best academics are hired.

The credibility of a CEO or president may send an important signal to the firm's current employees; it also signals information to *potential* employees who may be at an informational disadvantage with respect to organizational characteristics like, for example, the work environment. If the firm is headed by an expert leader this might suggest to potential core employees that an appropriate work environment exists (for reasons explained earlier). Signaling that an optimal work environment exists in an organization may expand the applicant pool of potential outstanding core workers and thereby increase performance.

*Proposition 6*: *Expert leaders attract better potential employees than manager leaders.*

**3. Signals strategic priorities**

Finally, hiring an outstanding expert leader may also signal credibility to a wider audience. For example, an organization's board may choose to hire a noted expert or specialist to send out a signal about strategic priorities to employees, and also to external stakeholders such as shareholders, customers, suppliers, the media, and donors.

*Proposition 7*: *Expert leaders appear in a more positive light for external stakeholders than manager leaders.*

## 5 Discussion: The Potential Vulnerabilities of Expert Leaders

We have so far presented a positive view of expert leaders and explained how organizational performance may be enhanced (see Figure 1). However, it is also important to consider the potential shortcomings associated with the individual characteristics of specialists. We have identified four possible drawbacks associated with expert leaders in knowledge intensive settings which are outlined below[5].

(1) Experts may have an overly narrow perspective. Being intrinsically motivated, to the extent that experts are, will likely require shutting out the world for some years lest it distracts from the goal in hand. This intense focus may have a detrimental effect on other areas of personal development. It might also stifle original thinking or lead to 'groupthink' (Janis, 1971). In the case of a hospital, a critic might suggest that an expert surgeon may be less able to make judgments about other fields, like acute care or preventative medicine, and, therefore, a generalist or lay person may be better placed to weigh up competing arguments. This, we believe is incorrect. Arguably, a general manager may also have a contracted perspective if, for example, he or she has come from a finance background or marketing. Another often heard suggestion is that managers and administrators make it possible for core workers to have more time to focus on their own priorities, for example patient care. This is an ideal scenario; however, the opposite situation may happen if administrators design managerial systems without consideration about how these processes will affect core workers. Universities and hospitals are places where these types of complaints are common place. Finally, a discrepancy may also arise in performance management and assessment, especially in the provision of complex services, such as healthcare or education. The priorities of an expert will likely differ from those of a manager.

[5] These are the most common critiques raised by those attending presentations of this work and also in media interviews.

(2) There is a risk that professional rivalries may occur between an expert leader and other experts. This is often perceived to be a potential problem in universities, because of fears that disciplinary favoritism might distort organizational priorities (e.g. the London School of Economics never hire's internal faculty members to become Director for this reason). We reject this criticism because it is unclear why prospective rivalries would be any more likely in KIOs than in other kinds. In universities among other settings, there has been a preference (bearing on the extreme) to hire external candidates into leadership roles. It is unclear how this pattern emerged, however it is likely to have been introduced by head-hunters who cannot charge clients for internal candidates. Hiring only externals may have its benefits, insofar as it brings in new blood and possibly new and better practices; but it is also likely to change the culture of an organization, and, importantly, it fails to recognize the potential of internal candidates and capitalize on their loyalty to the institution.

(3) Industries often decline in prominence because of outdated norms and operations, which may require an injection of new blood and new systems from outside (Spender, 1989). In the UK public sector, and more generally around the world, a New Public Management (Hood, 1991) led to a revolution in the delivery of public services. Professional managers may have assumed greater powers in organizations because of the recognition that modern management practices contribute towards successful performance (Bloom & Van Reenen, 2007). Experts and professionals may have been less inclined to adopt innovative managerial applications. This could in part be explained by the generic style of management training offered. Experts and professionals tend to be reluctant leaders and managers. But if an appropriate form of training were made available (e.g. bite-sized portions, the right incentives, use of common language with reduced jargon), take-up may be enhanced. We have promoted the idea that being a successful manager alone is not a sufficient condition for effective leadership; but, correspondingly, we have also argued that experts must also be excellent managers if they are to take on leadership positions.

(4) Finally, the success that experts accrue in one field, may imbue them with the belief that success is as likely in all fields they later engage with, thus inducing hubris. There is a tendency for successful people (both experts and non-experts) to attribute their ascent to their own brilliant talent -- as predicted by social psychology's attribution theory (Heider, 1958). For example, a successful surgeon praised for his or her technical skills, more adored because of saving lives, might over-attribute to their own talent. Success, arguably, comes also from luck, networking and providence. It has been suggested that leaders need empathy if they are to be effective (Maccoby, 2000; Kelletta, Humphrey & Sleeth, 2006). Intrinsic motivation combined with self-motivation may weaken the specialist's ability to place themselves in others' shoes.

## 6 Conclusion

Those hiring senior leaders in knowledge intensive settings, from hospitals to technology firms, may be inclined to appoint CEOs who are talented managers but have little or no expertise in the core business of the organization. The arguments laid out in this chapter

suggest that this is a mistake. KIOs should, according to the evidence, look for leaders who have expert knowledge (those who understand the core-business, and are competent in the organization's core activity). In this chapter we present a model of expert leadership that builds on previous conceptual literatures and evidence. The framework in Figure 1 suggests that organizations will perform more effectively when led by expert leaders, as compared to capable general managers.

Given our promotion of expert leadership, this paper is implicitly critical of the empirically-documented rise of the professional manager and generalist CEO. Whilst acknowledging possible vulnerabilities, we argue that expert leaders can be expected to improve organizational performance through both their actions and decisions, and also the signals they convey. Specifically, we propose several mechanisms through which expert leaders might improve firm performance: by implementing a knowledge-based strategy; by creating an attractive environment for core workers, and appropriate goal setting and evaluation; by hiring the best workers; and finally, by signaling credibility to current and potential employees and other important stakeholders.

We argue that these mechanisms might be especially relevant in knowledge-intensive settings, where: (1) The relevance of organizational strategy for staying competitive might be especially strong (*knowledge-based strategy*); (2) Workers effort cannot be easily measured and therefore requires appropriate or technical appraisal (*evaluation*); (3) Failure needs to be tolerated by managers in experimental settings such as KIOs (*work environment*); (4) Knowledge-workers can be among the most expensive to retain, therefore requiring the right incentive structures and work environment (*work environment*); and (5) Performance is more closely tied to employees' ability (*hiring).*

The theoretical framework in Figure 1 raises propositions in the form of transfer mechanisms to be tested in new research[6]. Furthermore, the theory of expert leadership outlined here draws from studies of organizations that are either knowledge-intensive (e.g. research groups, academic departments, universities, hospitals) or high-skill (e.g. basketball teams and Formula 1 Championships). These settings have been examined partly because measuring productivity is relatively uncomplicated; for example, it is possible to apportion research outputs and citations to individuals, groups and institutions. Similarly, hospitals are publicly ranked according to quality measures, and so on. However, the question of how the expert leader proposition will fare in other kinds of settings − the boundary conditions of our theory – will need to be established empirically in future research.

[6] Bäker and Goodall began a new study of leadership and scientific productivity in March 2014.

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